

(12) UK Patent Application (19) GB (11) 2 285 578 (13) A

(43) Date of A Publication 19.07.1995

(21) Application No 9326214.5

(22) Date of Filing 22.12.1993

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(51) INT CL⁶

A61K 35/78, A23L 2/52

(52) UK CL (Edition N)

A5B BE BHA BJA B180 B30X B30Y B36Y B361
U1S S1317

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(58) Field of Search

UK CL (Edition N) A2B BMH11 BMH12 BMH13 BMH19
BMH9, A5B BE BHA BJA
INT CL⁶ A23L 2/52, A61K 35/78
ON LINE DATABASES: WPI, CLAIMS, CAS ONLINE,
JAPIO, EMBASE, MEDLINE, BIOSIS

(54) Beverages containing added guaranine

(57) Caffeinated or decaffeinated beverages, e.g. tea, coffee, chocolate or cola drinks, contain added guaranine. The guaranine may be added in pure form or as seeds or extracts of the Paullinia Cupana plant (Guarana). The consumer has increased energy, vigour, alertness etc. Optional vitamins or herbal extracts may further included in the beverages e.g. Vitamin B.

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The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1990.

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IMPROVED BEVERAGE

This invention relates to improved caffeinated and decaffeinated beverages, and to formulations for being added to such beverages.

5 Caffeinated beverages have long been drunk for their stimulant properties and typical examples include tea, coffee and cocoa, as well as carbonated soft drinks such as colas. I have found that some of the qualities of these beverages may be improved, and further stimulating and 10 enduring properties may be added by the incorporation of an amount of guaranine. The consumer may experience a virtually immediate brightening and a sense of alertness and removal of fatigue. They may also experience an improved sense of energy and well-being with a positive frame of mind 15 and enhanced concentration. Mentally demanding tasks and those involving memory and memorising may be easier and less tiring, and this easing may also be found with physically demanding tasks. Also stress and anxiety may be alleviated or reduced. The period for which these effects are experienced may extend for relatively long periods, typically 20 between 4 and 12 hours. It will be understood that the metabolism and responsiveness will vary between individuals but a consumer may reasonably expect to experience at least some of these benefits.

25 Accordingly, in one aspect of this invention, there is provided an improved caffeinated or decaffeinated beverage wherein the improvement comprises an amount of guaranine.

The term "caffeinated" is used to describe those

beverages in which an amount of caffeine is present either naturally or by introduction. The caffeinated or decaffeinated beverage may be any beverage containing caffeine or one from which caffeine has been removed, either 5 from the beverage itself or from a caffeine-containing constituent. Thus, tea, coffee, chocolate and cola drinks are but a few examples.

The guaranine may be introduced in an isolated or purified form, preferably in an amount of from 2.5 mg to 50 10 mg and preferably about 25mg per serving, but it is preferably present in the form of the seeds of the Paullinia Cupana plant (or Guarana plant) or an extract thereof. The ground seeds are preferably present in an amount of from 50 mg to 1000mg, and preferably about 500mg per serving, with 15 a typical serving being a cup, mug, can etc, and thus containing between about 100 and 200 ml.

The seeds of the Paullinia Cupana may be incorporated at a suitable stage in the formulation of the beverage, e.g. before, during or after roasting of the coffee (where 20 the beverage contains coffee) and before during or after grinding, drying and so on.

The seeds are preferably subjected to a micellisation process before or after roasting or sun-drying. In this process, the particle sizes of at least some of the constituent substances of the Paullinia Cupana seeds are reduced 25 by grinding or another suitable process so that the particles are of a size compatible with the local geometry of the absorption sites where they are absorbed and metabolised

in the human body. In this way the particles are absorbed more readily and more efficiently.

With both caffeinated and decaffeinated beverages, there is a significant and unexpected improvement in effect over taking either the caffeinated or decaffeinated beverage alone or guaranine alone. The reasons for the symbiotic effect between the caffeinated/decaffeinated beverage and guaranine are not fully understood but it is thought that in the caffeinated beverages, the guarana reduces the adverse effects of caffeine, particularly gastric irritation/nausea, whilst enhancing its stimulating powers. Also, the saponin content of guarana may provide a longer lasting effect. Furthermore, the high nicotinic acid content of coffee may liberate or more effectively use the guaranine and fats present in Paullinia Cupana.

With the decaffeinated beverages, similar mechanisms may be involved, because although the caffeine is no longer there, some substances which acted as cofactors or complementary agents with the caffeine in the non-decaffeinated version may fulfil a similar role with guarana.

Preferably the beverage includes one or more amplifying agents for amplifying or enhancing the effect of the guarana or the synergy between the guarana and the caffeinated/decaffeinated beverage. Thus the amplifying agent may be a vitamin or combination thereof, or one or more herbal extracts. The vitamin is preferably one or more of Vitamin A, Vitamin B complex, (Vitamin B₁ (thiamin), B₂ (Riboflavin), B₅ (pantothenic acid), B₆ (pyridoxine), B₁₂

(cobalamin), B_c (folic acid) H (Biotin), B (Choline), Vitamin C, D or E.

The herbal extracts are preferably from plants found naturally in China.

5 The Vitamin and/or herbal extracts are preferably present in micellised form.

In another aspect, this invention provides an improved caffeinated beverage, wherein the improvement comprises an amplification agent selected from the group comprising 10 vitamins and herbal extracts.

The invention also extends to a coffee beverage in which the various Vitamin B components are present in substantially the same proportion of the R.D.A. or E.A.R. Thus, the formulation may be standardised to the Vitamin B₃ (Nicotinic Acid) content which is relatively high in coffee. 15 Here the amount of Vitamin B₃ present in a typical serving of coffee is determined as a proportion of the R.D.A./E.A.R. and the other Vitamin B components may be made up to substantially the same proportion typically $\pm 25\%$ and ideally 20 $\pm 10\%$. The same may be done with other Vitamins such as A, C and E, but care must be taken to avoid exceeding the R.D.A./E.A.R., particularly where the Vitamins are fat soluble.

The invention contemplates the preparation of the 25 beverage in a variety of ways. Thus, for coffee, the beverage may be in ground form for being infused to make the beverage, it may be freeze dried or otherwise concentrated into powder, granular or liquid form. It may be in the form

of unground beans, filter bags, individual coffee cup filters and so on. Alternatively, and particularly where the beverage is a soft drink, it may be sold ready to drink in a bottle, can or carton. Similarly a separate formulation 5 of guaranine vitamins and/or herbs may be provided for being added in an appropriate quantity to a serving of caffeinated or decaffeinated beverage. The concentrations and amounts specified herein relate to the beverage when ready for consumption.

10 The natural composition of the Paullinia Cupana seed will vary according to the plant and the ambient conditions, but the composition is typically as follows:-

PAULLINIA CUPANA - ANALYSIS

Tannin	8.500%
Resins	7.000%
Amide	5.500%
Guarana	5.000%
Fats	3.000%
Saponin	0.600%
Theobromine	0.250%
Theophylline	0.125%
Adenine	small%
Guanine	small%
Xanthine	fraction
Cholesterine	fraction
Chatecoline	unspecified

Additionally, the Paullinia Cupana contains a fairly high percentage of ashes and others, which is typical to this type of plant substance. These are not considered pharmacologically important.

Whilst the invention has been described above it extends to any inventive combination of the features described above or in the following examples.

The invention will be further described by way of the 5 following Examples.

Example 1

A beverage was made up by combining a 5ml teaspoon of finely ground decaffeinated coffee with 500 milligrammes of finely ground Paullinia Cupana (Guarana) seed and mixing with 200 ml of boiling water.

The resultant drink was found to have a taste virtually undistinguishable from that of the coffee alone, but, surprisingly, the benefits were found to be of a far greater magnitude than those of the coffee alone and this effect extended over a period of four to twelve hours, and additional stimulating properties were observed.

Example 2

A beverage was made as described in Example 1, however, the following vitamin preparation was incorporated additionally:

Preferably in amounts of:			
Vitamin	A	Retinol	250iu - 10,000 iu
Vitamins	B:	B1 Thiamin	.15mg - 6mg
		B2 Riboflavin	.17mg - 7mg
		B5 Pantothenic Acid	1.0mg - 40mg
		B6 Pyridoxine	0.2mg - 8 mg
		B12	.3 μ g - 12 μ g
		Folic Acid	40 μ g - 1600 μ g
		Biotin	30 μ g - 1200 μ g
		Choline	50 mg - 2000 mg
		Inositol	50 mg - 2000 mg
Vitamin	C		6 mg - 2000 mg
Vitamin	D		40 iu - 1200 iu
Vitamin	E		3 mg - 120 mg

The resultant drink was, again, virtually undistinguishable from coffee, however, the effect was further amplified, yielding a significantly improved energy level, a positive mood, a greater ability to concentrate and utilise the intellectual facilities, and a reduction in stress and anxiety.

Example 3

A beverage was made up by combining a 5ml teaspoon of finely ground caffeinated coffee with the Vitamin preparation described in Example 2.

Example 4

A beverage was made up by combining a 5ml teaspoon of caffeinated coffee with 500mg of Paullinia Cupana (Guarana) and mixing with 200ml boiling water.

The resultant drink was virtually undistinguishable from coffee, but the stimulant effect was found to be of a greater magnitude.

Example 5

A beverage was made as described in Example 4 above, however additionally with the incorporated vitamin formula as described previously in Example 2.

The resultant drink was found to have a taste virtually indistinguishable from that of coffee alone, however the effects were further amplified in both the immediate and longer-term perception.

Example 6

Beverages were made up by combining 500mg Guarana with various types of prepared coffee drinks - using freeze-dried, instant, powdered, ground roast, liquid, and so on. The effects as described were still present in all forms of coffee and caffeinated or decaffeinated beverages.

In each of the following Examples 7 to 10, the substances are calculated in proportion to 5 ml teaspoon of de-caffeinated coffee granules, the beverage being made by adding 200ml of boiling water.

5 Example 7

5ml coffee

50 - 1000mg Guarana - preferably 500mg

6 - 1000mg Vitamin C - preferably 50mg -150mg

Example 8

10 5ml coffee

2,500 - 100,000iu Vitamin A Retinol or beta-carotene

.15 - 6mg Vitamin B1 Thiamin

.17 - 7mg Vitamin B2 Riboflavin

1.0 - 40mg Vitamin B5 Pantothenic Acid

15 0.2 - 8mg Vitamin B6 Pyridoxine

0.3 - 12ug Vitamin B12 Cobalamin

40 - 1600ug Vitamin Bc Folic Acid

30 - 1200ug Vitamin H Biotin

50 - 2000mg Vitamin B Choline

20 6 - 1000mg Vitamin C

40 - 1200iu Vitamin D

3 - 120mg Vitamin E

Example 9

5ml coffee

50 - 1000mg Guarana,

together with the Vitamin amplification set out in Example

5 8 above, and the herbal amplification formulation set out in
Example 10 below.

Example 10

5ml coffee

50 - 1000mg Guarana

10 with all or any combination of the following (by any name or
source of origin):

20 - 1000mg Radix Ginseng (Ren Shen, Panax Ginseng,

Pseudo-Ginseng, Ginseng Root, Ginseng by any name and

source of origin)

15 20 - 1000mg Radix Codonopsis Pilosulae (Dang Shen,
Cordonopsis Root)

20 - 1000mg Radix Angelicae Sinensis (Dang Gui)

20 - 1000mg Radix Glycyrrhizae Uralensis (Gan Cao)

20 - 1000mg Astralagi Membranacei (Huang Qi)

20 20 - 1000mg Semen Gingko Bilobae (Bai Guo)

20 - 1000mg Sclerotium Poriae Cocos (Fu Ling, China Root,
Hoelen, Poria, Sclerotium of Tuckhoe)

20 - 1000mg Rhizoma Atractylodis Macrocephalae (Bai Zhu,
Atractylodes)

25 20 - 1000mg Semen Zizyphi Spinosae (Suan Zao Ren, Sour
Jujube seed)

20 - 1000mg Fructus Zizyphi Jujubae (Jujube Fruit, Red
Dates)

20 - 1000mg Radix Polygalae Tenuifolia (Yuan Zhi, Chinese Senga Root)

20 - 1000mg Radix Aucklandia Lappae (Mu Xiang, Costus Root)

20 - 1000mg Arillus Euphoriae Longanae (Long Yan Rou, Longan Root)

5 20 - 1000mg Fructus Chizandra Chinensis (Wu Wei Zi, Schisandra Fruit)

20 - 1000mg Rhizoma Polygonati (Huang Jing, Siberian Solomon Seal Rhizome, Polygonati, Polygonatum)

10 Example 11

5ml caffeinated coffee

50 - 1000mg Guarana,

together with the Vitamin amplification formulation set out in Example 8, and the herbal amplification formulation set out in Example 10.

15 Example 12

A beverage was made up by combining a 5ml teaspoon of caffeinated coffee with 200ml of boiling water, together with a herbal amplification formulation set out in Example 10.

20 Example 13

A beverage was made up according to Example 12, but with the addition of the Vitamin amplification formulation set out in Example 8.

25 Example 14

A beverage was made up by combining a 5ml teaspoon of decaffeinated coffee with 200ml of boiling water, and the herbal amplification formulation set out in Example 10.

Example 15

A beverage was made up according to Example 14, with the addition of a Vitamin amplification formulation as set out in Example 8.

5 Example 16

A beverage was made up by combining a 5ml teaspoon of decaffeinated coffee with 200ml of boiling water, and 6-1000 Vitamin C (preferably 50mg - 150mg).

Example 17

10 A beverage was made up according to Example 16, but using caffeinated coffee instead of decaffeinated.

Example 18

15 A beverage was made up combining a 5ml teaspoon of caffeinated coffee with 200ml of boiling water with 50 - 1000mg guarana and the herbal amplification formulation of Example 10.

Example 19

20 A beverage was made up by combining 5ml of caffeinated coffee with 200ml of boiling water, 50 - 1000mg guarana, and 6 - 1000mg Vitamin C (preferably 50mg to 150mg).

Example 20

A beverage was made up by adding 50-1000mg guarana (preferably 500mg) and 6 to 1000mg Vitamin C (preferably 50mg - 150mg) to 100ml of a cola drink.

25 Example 21

A beverage was made up according to Example 20, but with the addition of the herbal amplification formula set out in Example 10.

CLAIMS

265 1. This invention relates to improved caffeinated and decaffeinated beverages and to formulations for being added to such beverages.

270 2. Caffeinated beverages have long been drunk for their stimulant properties and typical examples include tea, coffee, chocolate and cocoa, as well as carbonated soft drinks such as colas.

3. Caffeinated and de-caffeinated beverages can be improved in a significant and unexpected way by the addition of formulations containing plant and herb extracts and vitamins.

275 4. When consumed, the flavour of the new beverage is virtually indistinguishable from coffee but yields an effect of far greater magnitude than either the coffee alone or the augmenting agents alone, with an unexpected synergistic potency.

5. The coffee enhances the action of the formulation or formulations, whilst the formulation/s amplifies the effects of the coffee. The reasons for the symbiotic effect between the caffeinated/decaffeinated beverage and the formulations is not 280 fully understood.

6. The consumer may experience a virtually immediate brightening of the senses with improved energy and vigour, alertness and removal of fatigue.

285 7. They may also experience an improved sense of energy and well-being with a positive frame of mind and enhanced concentration.

290 8. Mentally demanding tasks and those involving memory and memorising may be easier and less tiring, and this easing may also be found with physically demanding tasks.

9. Also stress and anxiety may be alleviated or reduced.

10. The formulations are believed to reduce the adverse effects of caffeine, particularly gastric irritation/nausea.

295 11. The period for which these effects are experienced may extend for relatively long periods, typically between 2 and 12 hours. It will be understood that metabolism and responsiveness will vary between individuals but a consumer may reasonably expect to experience at least some of these benefits.

300 12. Accordingly, in one aspect of this invention, there is provided an improved caffeinated or decaffeinated beverage wherein the improvement comprises an amount of *Paullinia Cupana*, also known as *Guarana*, which contains guaranine.

13. The invention also extends to an improved coffee beverage in
305 which the various Vitamin B components are present in substantially the same proportion to the Vitamin B3 (Nicotinic Acid) content which is relatively high in coffee, and proportionately standardised according to the RDA/EAR. This also gives an unusual effect.

14. In another aspect, this invention provides an improved
310 caffeine/decaffeinated beverage, wherein the improvement comprises any one or any combination from the group comprising herbal extracts.

15. In another aspect, this invention provides an improved
315 caffeine/decaffeinated beverage, wherein the improvement comprises an amplification agent or agents selected from the group comprising vitamins and herbal extracts.

16. Also, the vitamins and herbal extracts may provide additional
320 synergies.

17. The special effects and features may be enhanced if the improving agents are subjected to micellization.

Patents Act 1977

Examiner's report to the Comptroller under Section 17
(The Search report)Application number
GB 9326214.5

Relevant Technical Fields

(i) UK Cl (Ed.N) A5B (BE, BHA, BJA) A2B (BMH9, BMH11, BMH12, BMH13, BMH19)

(ii) Int Cl (Ed.6) A61K 35/78, A23L 2/52

Search Examiner
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Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASES: WPI, CLAIMS, CAS ONLINE, JAPIO, EMBASE, MEDLINE, BIOSIS

Date of completion of Search
10 APRIL 1995Documents considered relevant following a search in respect of Claims :-
1-17

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
X	Chemical Abstract No 89:89063 & Colet. Inst. Tec. Aliment (1977), 8(2), pages 391-407	12 at least
X	Japanese Patent Abstract No 59-227277 & JP 590227277 A (SAWADA) see abstract	12 at least
X	Natures Best Product Catalogue, No 13, 1992/93, page 66 see page 66 under Guarana	12 at least
X	WPI Accession No: 77-50554Y/29 & DE 2559384 A (KLOSA) see abstract	12 at least

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